REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Office Action dated 15 March 2005. Responsive to the rejections made in the Official Action, Claim 1 has been amended to more clearly clarify the inventive concept of the Applicant.

The Examiner rejected Claims 1 and 2 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specifically, the Examiner stated that Claim 1 was not clear over whether x defines the molar or weight ratio. In response to this rejection, Claim 1 has been amended and now particularly points out and distinctly claims the subject matter which Applicant regards as the invention.

In the Office Action, the Examiner rejected Claim 1 under 35 U.S.C. § 102 as being anticipated by Ito, et al. (U.S. Patent 6,090,732). In the rejection, the Examiner referred to examples 1-8 in Ito, et al. and stated that Claim 1 was considered anticipated.

Before discussing the prior art relied upon by the Examiner, it is believed beneficial to first briefly review the subject Patent Application inventive concept, as defined in the Claims. The object of the present invention is to provide a dielectric ceramic composition having a low dielectric constant and excellent sintering properties for use in electronic components. The inventive composition is represented by the following formula; $(1-x)\left(A'_{1-y}A''_{y}\right)O-xP_2O_5$, wherein A' is either Ca, Ba, Sr, Zn, My, Ni, Mn or W and A" is a cation substituent. It has been found that the dielectric ceramic composition of the subject Patent Application has excellent dielectric characteristics, for example, a low dielectric loss, a low dielectric constant and excellent temperature

stability, and can be sintered at a low temperature.

In contradistinction, the Ito, et al. Patent is directed to zinc-doped tricalcium phosphate ceramic material. The ceramic material of Ito, et al. is used as a surgical implant for a hard-tissue of a living body. Ito, et al. discloses the use of zinc because of its known osteogenesis-promoting effect and therefore its pharmaceutical effect when placed into a living body.

Nowhere does the reference disclose or suggest a dielectric ceramic composition which is used in electronic components. Although Ito, et al. discloses the use of calcium, zinc and phosphate in its composition, nowhere does the reference disclose or suggest the use of a "... cation substituent ..." as now defined in amended independent Claim 1. The use of the cation substituent allows sintering at a low temperature of 850°C and improves the dielectric characteristics. Ito, et al. uses a sintering process in which polyvinyl alcohols are used as a binder in the sintering process and sintering is performed at a temperature range from 900-1200°C and more preferably from 1050-1200°C. Therefore, the Ito, et al. reference does not direct itself to the elements of the subject invention concept as defined by now amended independent Claim 1 and does not provide for the objects and the purposes of the subject invention system.

In the Official Action, the Examiner rejected Claims 1 and 2 under 35 U.S.C. § 102 as being anticipated by Lee (U.S. Patent 6,514,891). In the rejection, the Examiner specifically referred to Table I in the Lee '891 reference. The Lee '891 reference is directed to a dielectric composition for a solid state display. The Lee reference discloses a dielectric composition that includes a glass former such as SiO_2 and B_2O_3. As Applicant has shown, the use of dielectric glass compositions has disadvantages such as a

considerably reduced Q-factor and a high dielectric loss in the high-frequency bands. Additionally, the glass compositions have poor temperature stability because the resonance frequency temperature coefficient cannot be stably controlled. Furthermore, the Lee reference uses binary and ternary compounds which are used to increase the dielectric properties. Lee discloses binary compounds comprising $PbTiO_3$ and ternary compounds comprising $PbTiO_3$ and $PbZrO_3$. As mentioned, the binary and ternary compounds are used in oxide fillers added to the main glass powder (B_2O_3 or SiO_2) in order to increase the dielectric properties.

Nowhere does the Lee reference disclose or suggest, "... a phosphate-based ceramic composition with a low dielectric constant ... wherein A" is a cation substituent ..." as is now defined in amended independent Claim 1. The Lee '891 reference uses glass formers which do not have the same dielectric properties as the phosphate-based ceramic compositions taught by the subject Patent Application. Furthermore, Applicant's claimed composition has excellent dielectric characteristics without the use of binary and ternary compounds. Therefore, the Lee reference does not direct itself to elements of the subject invention concept as defined by now amended independent Claim 1.

In the Official Action, the Examiner rejected Claims 1 and 2 under 35 U.S.C. § 102 as being anticipated by Lee, et al. (U.S. Patent 6,376,398). In the rejection, the Examiner specifically referred to Table 3 in the Lee, et al. '398 reference. The Lee, et al. '398 reference is directed to a dielectric composition for a plasma display panel. In the dielectric composition of the Lee, et al. reference, a P_2O_5-ZnO-BaO group glass is used. Furthermore, as shown in Table 3 of the Lee, et al. '398 reference, glass former (B_2O_3) is used in the disclosed compositions. As stated in reference to the Lee '891 Patent, the use

of a glass former such as B_2O_3 has many disadvantages such as a considerably reduced Q-factor and a high dielectric loss in the high-frequency bands. Additionally, the glass has poor temperature stability because the resonance frequency temperature coefficient cannot be stably controlled.

Therefore, it is respectfully submitted that the Lee, et al. '398 reference does not disclose or suggest, "... a phosphate-based ceramic composition with a low dielectric constant ... wherein A" is a cation substituent ...", as is now defined in amended independent Claim 1.

Admittedly, the Lee '891 and the Lee, et al. '398 references disclose compositions similar to that of the subject Patent Application. However, the references use glass formers which result in disadvantages in the dielectric characteristics. It is these disadvantages that Applicant has overcome by the use of a ceramic composition, the composition that is neither disclosed nor suggested by either Lee '891 or Lee, et al. '398 references.

It is not believed by the undersigned Attorney that any of the references anticipate the subject Patent Application as now defined by amended Claim 1.

While it is believed that dependent Claim 2 adds further patentably distinct limitations, that Claim is at least patentably distinct for the same reasons as independent Claim 1.

The references cited by the Examiner but not used in the rejection have been reviewed and are believed to be further remote from the subject invention concept as defined the now amended Claim and that used by the Examiner in his rejection.

It is now believed that the subject Patent Application has been placed in condition for allowance and such action is respectfully requested.

Respectfully submitted,
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